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## News from the Savannah River National Laboratory

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### **SRTC Device Searches for Signs of Life**

AIKEN, S.C. – The quest for signs of life on Mars is taking place in a remote desert in northern Chile.

Searching for life on Mars -- or even extinct life -- is a daunting task. That's why researchers, with the help of an instrument developed at the Savannah River Technology Center, are investigating some of the most desolate spots on Earth. In this search for life, NASA scientists are exploring the interior of the Chilean Atacama Desert, the most arid region on Earth. This desolate desert appears to be void of nearly any signs of life -- not just a lack of mammals, birds, reptiles or insects, but barely evidence of any spores or bacteria.

In this bleak environment, researchers with NASA's Jet Propulsion lab are using a biological detection device developed at the SRTC known as ACE (Atmospheric Contaminate Extractor) to search for airborne microbial life.

ACE could be one of an array of instruments that joins future missions on the Space Station.

"We are proud to be a part of this investigation to bring new scientific understanding of the Atacama Desert's habitat," says Dr. Todd Wright Laboratory Director of SRTC. "The efforts to find even the most miniscule clues to life's byproducts in this barren desert can have distinct analogies to the search on Mars."

ACE was developed at the SRTC, the applied research and development laboratory for the Department of Energy's Savannah River Site, for the United States Homeland Security program. SRTC's Dr. Cliff Carlson along with Dr. Paula Cable-Dunlap and Jeff DeGange designed ACE to collect any aerosol, including chemical agents; radioactive particles; microorganisms (such as spores, bacteria, and fungi); residual substances from explosives; and byproducts of manufacturing processes (such as lead in a battery factory).

In earlier experiments in the Atacama Desert, which in the past four years received only one rainfall of 1/10 of an inch, NASA researchers discovered clues about the limits of life on Earth and why past missions to Mars may have failed to detect life. In a round of more extensive studies ACE was used to extend the limits of detection for microbes and test for the amount of microbial input from the atmosphere.

NASA scientists plan similar experiments with ACE in the Mohave Desert, and a possible return trip to the Atacama Desert.

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